1 Agriculture and Allied Sectors

1.1 Salient features of the agriculture sector in Bastar district

1. **Rich and bountiful natural capital**: Bastar is blessed with bountiful rainfall, water bodies, abundant forest cover and bio-diversity, fertile soil and a wealth of indigenous varieties of paddy, millets and other crops.
2. **Preponderance of paddy / absence of diversity of produce**: Almost two-thirds of the kharif sown area is for cultivation of paddy. Maize accounts for about 14% and the rest of the area is for millets, pulses and oilseeds. This indicates a high preponderance of one crop and a lack of diversity in the cropping pattern.
3. **Limited Rabi crop due to inadequate water conservation**: The total cropped area in Bastar district is around 1.92 lakh hectares. Of this, only about 23000 hectares is irrigated giving a ratio of 12% of the area being irrigated. This points to an extremely low utilisation of the irrigation potential. In spite of the abundant rainfall of over 1300 mm annual average, only 20% of the area is sown for rabi crop, due to lack of availability of water during rabi season. As a result, some of the youth migrate to other areas after the kharif harvest for working on wages while others work on daily wages within the district.
4. **Low productivity**: The average yield of paddy per hectare for Bastar is less than 20 quintals per hectare. This compares poorly with the national average. However, this could be because of low use of chemical fertilisers and pesticides, which in itself could be considered a welcome feature (fertiliser consumption in Bastar is around 45 kg. per hectare (2018) as against the national average of 165 kg. per ha in 2014).
5. **Suitability for sustainable agricultural practices**: The traditional farming methods (though being discontinued in some places), the diversity of indigenous varieties, the availability of rich biomass etc. make Bastar suitable for introduction / intensification of sustainable agricultural practices.
6. **Inadequate infrastructure or physical capital**: Agriculture prospers with the availability of supporting infrastructure such as good connectivity by way of roads or rail facilitating easy access to inputs as well as markets including the nearby mandi, irrigation infrastructure, processing and storage facilities etc. Bastar lacks adequate infrastructure or physical capital for a steady growth of agriculture
7. **Inadequate supporting services including financial services**: Agriculturists in Bastar do not enjoy the benefit of requisite support services in a timely manner such as availability of finance, insurance, weather forecasting, expert advice etc.
8. **Low level of allied activities such as livestock rearing etc.**: Livestock density is only 80 per sq.km. (around 515000 livestock in 6420 sq.km. in 2015-16) in Bastar district. Dairy farming or poultry are not taken up as a commercial activity by the farmers, though quite a few farmers have backyard poultry or cattle.

1.2 Potential and possibilities

1. **Potential for diversifying cropping pattern**: As about two-thirds of the area is used for paddy cultivation, there is scope for the farmer to earn higher income by replacing paddy at

least in part of the farm with crops which provide a better return including vegetables, horticultural crops or medicinal plants, spices etc.

2. **Indigenous varieties and natural farming**: The average consumption in Bastar of fertilisers and pesticides per hectare is low, as already stated above. There are many villages where the farmers do not use any pesticides or chemical fertilisers at all. The farmers also use many indigenous varieties of paddy etc. Due to these practices already existing, the region is eminently suited to produce organic food and to cater to the growing demand for indigenous varieties and organic or natural produce from the affluent consumer. Market linkages would have to be explored and established.
3. **Water harvesting and increased sowing in rabi season:** It is possible to promote water conservation through various means. A comprehensive programme including water harvesting with a ridge to valley approach, check dams, nallabunding, ponds in farms, community tanks (talaabs), dug wells etc. could result in providing adequate water during rabi in most areas to increase the cropping intensity. Millets and pulses or oilseeds etc. could be cultivated in rabi season.
4. **Developing allied activities:** Activities such as dairy, piggery, goat farming, backyard poultry and fisheries could be promoted to supplement the income from agriculture.
5. **Processing and value addition activities by agriculturists:** One of the reasons for the limited income of farmers from agriculture is the absence of any value addition being carried out by farmers. It is well known that the market price of any farm produce increases considerably once it undergoes processing of any kind. The higher the level of processing, the higher is the value addition. While it is true that it would be difficult for individual farmers to undertake processing of agricultural produce, it is possible to form producer groups or larger organisations to carry out at least the primary level of processing.

1.3 Existing arrangements, schemes etc.

There are various government schemes for promotion of agriculture and for support to the agriculturists. Schemes have been designed to address almost every need of the farmer and are being implemented throughout the district.

Besides the regular schemes being implemented for the last few decades, the Chhattisgarh government has recently launched a comprehensive project called the Narwa, Garuwa, Ghurwa, Bari (NGGB) scheme. The scheme has been creatively designed recognising the wisdom of the traditional practices which were being followed in Chhattisgarh and aims to restore some of the practices. It includes water conservation through restoration of streams, cattle protection through various means including building of gouthans or cow-sheds, promoting bio-composting through manure pits etc. and lastly backyard gardens for vegetables etc. which would help meet the nutritional needs and for additional income. The scheme, on implementation on a larger scale over time, could go a long way in restoring the sustainability of agriculture and also promoting livelihoods.

Innovative projects have been implemented in Bastar even in the past. One of the successful projects implemented, even before the formation of the Chhattisgarh state, was the cashew plantation undertaken. This has resulted in introducing cashew in Chhattisgarh which continues to be grown largely in some areas even today.

Over 9000 SHGs have been promoted and agricultural schemes are also implemented through them. The government has also promoted organic farming through formation of organic clusters since

2015 under the JaivikKheti Mission and the Paramparik Krishi VikasYojana. Around 1900 hectares have already been brought under organic farming in 55 clusters.

Besides state government departments and agencies, other institutions such as the Universities and specialised promotion institutions also implement various projects bringing about considerable improvements on the agricultural front. The Horticultural University in Bastar district has conducted research on the suitability of coffee in Bastar and has also introduced it successfully. It has also worked on introducing other crops such as kinno besides varieties of spices. Newer varieties of cashew were also introduced over large areas.

The Coconut Development Board at Kondagaon has also done considerable work in propagating the planting of coconut commercially as the trees could be planted in the midst of paddy fields as well.

1.4 Reasons for under-achievement of the potential

1.4.1 Pattern of control

i. The rural community depends on the government agencies for various purposes. The schemes of the government are also quite comprehensive to cover most requirements. It has also been seen that on quite a few occasions, the government agencies have effectively implemented programmes. Moreover, the reach and scale which government agencies can achieve are unmatched. There, however, appears to be a gap, at least in some cases, in the connect between the government departments and the community. It is believed by some that government schemes follow a top-down approach and that there is no participation of the people or the beneficiaries in the designing of the scheme. While this may be a valid observation to some extent, it is also true that the average farmer is not in a position quite often to realise beforehand what would be best for him. This is especially true in the case of introduction of new technology or new products. It would be useful if awareness creation is first attempted, through various means including social media and imaginative films etc., before finalising a scheme so that the farmers become aware of the various possibilities. Discussions with farmers could then be held before launching the schemes.

ii. The farmer should be able to approach the government, either individually or collectively, for their needs. This is generally achieved only by those who are better off in terms of status, knowledge, money, connections etc. If the efforts are collective, there would be better chances that the benefits also reach those who would not be able to approach the government authorities singly. The need, therefore, is to encourage forming groups of farmers in a village or a cluster of villages for discussing their needs and approaching the government.

iii. Generally, the elected representatives of people are involved in the scheme for launch, selection of villages and beneficiaries etc. It is not known if the extent of involvement of elected representatives is adequate enough and effective at the designing stage of schemes.

iv. It also happens that some of the schemes reach first to those who are in a better position to take advantage of the schemes.

v. The points mentioned above are not specific to Bastar district as such and are generally observed in most places.

vi. As regards markets, the farmer has limited control over the market and accepts the prices determined by the buyers, irrespective of whether the buyer is government or private trader. The farmer has no capacity to withhold to produce for a long time after harvest due

to the urgency of need for cash and lack of arrangement for storing goods and, if needed, obtaining finance against them. As such, the farmer has to sell at prices ruling immediately after harvest when they are generally at the lowest. The traders with a capacity to store the goods are in a position to reap the benefit of higher prices after a time lag.

vii. The position does not differ much when the government is the buyer, though the prices are generally higher in government procurement than those that a trader offers. The farmer has to sell immediately even in this case. In fact, the delivery process is more cumbersome for the farmer in selling to the government.

viii. An indirect but important impact of the government procurement process is that the farmer loses control over the decision regarding what to produce. This is because of the procurement benefit offered by the government being restricted only for a few crops. Even if the government does announce procurement of other crops, the prices offered may not be lucrative. Nationwide, the prices have tended to be lucrative for wheat and rice leading over the decades to a change in the production and also the consumption pattern because these are the two cereals which are procured the most and therefore off-loaded the most through the Public Distribution System (PDS). Over the last few decades, the country has seen a shift from more nutritive millets etc. to wheat and rice. In Bastar, rice has been one of the items of staple diet. However, minor millets were also a part of the diet and their consumption is getting reduced. While it may be felt that rice was always a major component of diet in Bastar, the procurement and PDS policies have had an impact which has gone largely unnoticed.

Bastar, rather Chhattisgarh, was called the rice bowl of India and had thousands of indigenous varieties of paddy. The farmer used to choose the variety to be produced, mainly for home consumption, and sell the surplus over what was required for self-consumption. With the availability of rice under PDS at negligible cost (Re. 1 per kg. in some cases) and in the absence of any differentiated procurement price for indigenous varieties, the farmer has to forego the freedom of choice of indigenous varieties and cultivate the high yielding varieties, seeds of which are offered again through government channels, to get the benefit of higher procurement price.

There are families of farmers which sell the entire produce cultivated at the procurement price (which was Rs. 2500 per quintal after bonus for the year 2018-19) and consume the less nutrient rice available through PDS. This loss of freedom of choice to the farmer, the reduced proportion of millets in the food basket, the gradual disappearance of many indigenous varieties of paddy and, lastly, the loss of nutrition from these varieties for the farmers' families are some of the facets of impact of the procurement policy not yet recognised in the policy echelons.

1.4.2 Institutional capacity

i. *Government agencies*: Government departments have designed and launched some highly useful schemes for agriculturists. Successful and effective projects launched by government departments have been witnessed in the past. However, many schemes are implemented in a routine manner as well or even designed without adequate thought given to its efficacy. A common observation is that the commitment, vision and what is described as the dynamism of the leader of the mission or project determines to a great

extent the success of the project. It may also happen at times that a good team gets formed either coincidentally or by design.

The factors for the success of such programmes could be many and need to be studied in detail, so that such projects become a norm. It should also be noted that besides government departments, other organisations such as the Coconut Development Board etc. at Kondagaon have done good work, as already mentioned, but perhaps greater efforts at reaching out to people would result in higher level of adoption. Overall, it can be said that the government departments and other agencies are quite competent to introduce various innovations. It could be examined if some innovative ways of reaching out to people, understanding their needs or issues and involving them in the new measures would help in more effective design and implementation.

ii. *Knowledge institutions*: As mentioned earlier, the scientists at the Horticulture University at Jagdalpur have done extensive research in studying the suitability of various horticultural crops and have also successfully introduced quite a few new crops besides undertaking processing work based on demand. Similar work would, no doubt, have been done by other institutions. The institutions could examine ways of reaching out to more people for wider adoption of their projects.

iii. *Self-Help Groups and Producer Organisations*: Over the decades, a large Self-Help Group (SHG) network has been formed in Bastar. The various government, semi-government and civil society organisations involved in the formation and spread of this network certainly deserve credit for the achievement. The network can be used as a good starting point for all actions planned for community involvement in governance, promotion of livelihoods as also for a better environment and a decent standard of living.

Having said this, it should also be noted that further efforts are needed for empowering the SHGs and its members and strengthen their journey toward sustainability. Very few SHGs have gone beyond lending and taken up any commercial activity as a group. The SHGs could very well take up supply of organic inputs for farmers, sell output collectively or even take up primary processing activities for agricultural produce (such as decobbing of maize). While there certainly are possibilities of using the network as a starting point for community action, strengthening the groups should be seen as a part of the process.

As regards producer organisations such as farmer producer groups or organisations, their presence is limited and the level of activities is low. Farmer Producer Companies have been promoted through government initiative. However, their operations are yet to reach a level where they break even and much needs to be done in the area of governance etc. One of the noteworthy examples of a Farmer Producer Company breaking new ground is in the neighbouring district of Dantewada where Bhoomgadi Organic Farmers' Producer Company which provides seed etc. to its members, undertakes processing activities and markets organic produce. It also runs a Jaivik Café where food is served with most of the ingredients being organically produced. However, this company also needs to be strengthened to achieve sustainability.

iv. *Institutional arrangements for nurturing community institutions*: If community organisations are to take a bigger role in exploring opportunities for livelihoods

promotion in agriculture, there should be an institutionalised mechanism to nurture and strengthen them. There are, no doubt, government departments which are entrusted with promotion and strengthening of SHGs and producer organisations which are doing good work. There are also many civil society organisations like Pradan which have done commendable work in forming and nurturing SHGs. It could be examined if setting up of a specialised support and training institution, entrusted with the task of not only providing support in this area would be helpful. The institution should not only train and nurture community organisations, it could also provide support and guidance to officials of departments and civil society organisations involved in the work of promotion of community organisations. The institution could also provide inputs and training in technical aspects of processing operations suited for the region as well as provide support in branding and market linkages.

v. *Infrastructural arrangements*: Agricultural operations need adequate infrastructural arrangements to become economically profitable. This includes not just storage or transport facilities with good rail and road connectivity but also adequate processing units in the vicinity. For example, though cashew is grown in Bastar, it is understood that most of the processing of cashew is done in the neighbouring state of Odisha due to limited processing facilities in the district. Such facilities could be made available to the producer organisations.

1.4.3 Adequacy of financial provision

The funds allotted to various government schemes for agriculture such Chhattisgarh Inclusive Rural and Accelerated Agricultural Growth Project (CHIRAAG) and other, including allocations from the MGNREGA and DMF resources, appear to be adequate for the proposed initiatives by the Government, though a component would be for the usual official overheads in the implementation of any programme.

The Large Area Multi-Purpose Societies network is also active in the district to provide seeds and other inputs to farmers. The overall requirement of funds for agricultural operations is also low for many farmers due to the lower usage of fertilisers etc. The SHGs have mobilised their own resources and bank linkages of SHGs are at various stages.

However, in case activities such as trading or processing is taken up on a large scale by groups or community organisations, it appears that there is no provision for finance for such activities. The SHGs may find their own resources or the existing finance from banks inadequate for the activities. The Farmer Producer Companies, whether existing ones or new, would also find it difficult to obtain finance for meeting working capital needs. While the government has funded the initial expenses of the companies formed, their working capital needs have not been provided for.

Arrangements for meeting needs for finance for infrastructure such as cold storage units, transportation facilities, custom hiring centres etc. are also yet to be in place.

1.5 Steps suggested

Agricultural operations would not be profitable through cultivation of conventional produce unless the farmers take up **value addition through processing** of at least part of their output. This would be best done collectively as it would normally be difficult for individual farmers to take up processing activities.

In the case of Bastar district, there are some distinctive features of agriculture, which have already been discussed in the foregoing section. These are i) lack of diversity of produce and preponderance of paddy, ii) lack of water harvesting measures resulting in absence of rabi harvest in most places iii) suitability for organic farming and iv) low level of allied agricultural activities.

Based on the need for value addition by farmers and the peculiarities of agriculture in Bastar, the areas for action would be:

i) **Water conservation** through various measures including afforestation in catchment areas, nallabunding, check dams, restoration of traditionally used tanks or building new tanks, recharge pits etc. The Naruwa component of the NGGB scheme could be useful in this aspect when implemented over a larger area. Farmers should also be trained in water conservation efforts on their own. Some of the experiments carried out in neighbouring states could also be studied.

The next step would be to propagate **rabi cultivation** by identifying suitable crops.

ii) Farmers should be encouraged to shift away from exclusive cultivation of paddy to other crops such as vegetables, medicinal plants, spices and short duration horticultural crops. Certain trees such as coconut palms could be planted in paddy fields as well. Cashew, coffee, turmeric etc. have been found to be suitable for Bastar and could be propagated. The focus should be on **diversification of farm produce** instead of cultivation solely of paddy.

iii) **Allied agricultural activities** such as dairy farming, backyard poultry, goat rearing, piggery and fisheries could be promoted. Many of the farmers do own cattle and also have backyard poultry. However, cattle rearing is not taken up in professional manner especially due to the difficulties nowadays of getting the services of a *charwaha* or grazer, who takes the cattle of all farmers in a locality for grazing during the day. The government is promoting gouthans under the NGGB scheme (garua component) which would prove useful in taking care of the animals. Bastar district has plans for 54 gouthans this year of which 30 have already been constructed. Piggery and goat rearing could be encouraged keeping in view the food habits of the tribal communities. Fisheries is another activity which can be easily promoted.

iv) As mentioned earlier, most farmers use limited quantities of fertilisers or pesticides. There are many villages where chemical fertilisers or pesticides are not used. This makes the region suitable for promoting **organic farming. Indigenous varieties of paddy and millets** are also used. As mentioned earlier, the government is also promoting organic clusters in Bastar district. The neighbouring Dantewada district has been declared as fully organic. The promotion of compost pits under the Gharuwa component of NGGB is also a step in this direction. Cattle and goat rearing would also provide manure from dung and supplement organic cultivation.

v) If the proportion of produce such as cashew, turmeric, pulses, maize etc. rises in the cultivation by farmers, they could collectively take up processing activities. For this purpose, farmers groups or SHGs could be trained to take up **collective primary processing** activities in a small way. A network of small processing units carrying out primary processing could be established in clusters.

vi) The recommendations for organic farming as also for processing activities could be implemented effectively only when arrangements are made for **training of farmers,**

marketing support to groups and provision of finance. The first step for implementing the recommendations is to form groups wherever existing groups are not available for the activities, train all groups in processes of organic farming to ensure that the yield is more or less comparable with the other varieties and aggregate the produce. Training would also be required for processing of agricultural produce in a hygienic manner with standardised processes. A training mechanism would have to be established to take care of training in organic cultivation as well as marketing practices.

vii) For **marketing of produce, a centralised organisation** is recommended to be formed. This organisation would i) build awareness in farmers about the marketing possibilities for their organic produce and the precautions to be taken by them (these are over and above the training in practices in organic farming) ii) arrange for aggregation of produce either in unprocessed form or after processing iii) ensure attractive and protective packaging iv) take care of storage and logistics v) arrange for branding and marketing of the produce to the end consumer including in distant markets or sell to agencies which would undertake processing or the next stage of processing.

viii) Arrangements for provision of finance would have to be made. In the initial stages, government agencies or institutions such as NABARD would have to provide seed capital to the producer groups or organisations as also ensure availability of adequate working capital. Once the organisations demonstrate their ability to carry out business, they could approach banks and other financial companies for financial assistance. Besides large banks, the Regional Rural Banks, co-operative banks and the newly introduced category of Small Finance Banks could be approached for the loans. Crowd funding could also be attempted for groups of farmers. The funders targeted would be socially conscious urban residents, buyers of organic products, organisations and groups supporting social causes etc. This, however, would be needed to be done through the support of institutions.

ix) Organic farming and processing of farm produce would be **successful only when there exists an institutional support system in areas such as training in cultivation practices and in processing activities, marketing and finance.** All these functions could be through different support institutions or through different wings of a single organisation. A federating structure of the farmer groups could be formed so that the aggregation of produce, arrangements for training etc. could be co-ordinated through the federal body. Without collectivisation of farmers, federating of groups and institutional support mechanism for training, processing, marketing and financing activities, it would be difficult to achieve sustainability of the initiatives.

The institutional support system for training, marketing etc. for agricultural produce could also serve for rendering similar support for processing of forest produce, since marketing of both the produce could be under the same umbrella. Moreover, many families are engaged both in agriculture as well as in collection of forest produce and even the same groups could perform processing of both categories of produce.

The training to be provided to the groups would include not just training on technical processes or on packing etc. Since the activity would be in groups, they would have to be trained in management of records and maintenance of accounts; governance related matters such as participation, conduct of meetings, selection of office-bearers etc. and, most importantly, training in entrepreneurial qualities while functioning as a group. The

training would thus be not just in entrepreneurship but a variant of it in the form of “group entrepreneurship” or “collective entrepreneurship”. This aspect would be covered in a subsequent section as well.